



# Spill Tools™

**S**pill Tools™ are computer-based tools and learning aids designed to help local groups gain access to information for developing local area plans required under the National Oil and Hazardous Substances Pollution Contingency Plan. Tools include programs to calculate the fate of oil spilled onto water and spill control rates for chemical, thermal, and mechanical treatment methods. These tools allow government and private-sector planners to develop plans that save time and money. Spill Tools also provide methods that Area Committees can use to evaluate the capacity of local resources to mitigate spills.

## Dispersant Mission Planner™

The Dispersant Mission Planner is a Spill Tool component that provides a simple means for calculating the mathematical relationships associated with the application of dispersants to oil slicks. The model rapidly assesses how changes in dispersant platform configuration or operations can affect a potential dispersant application. The model can help responders:

- 1) Select and stage appropriate equipment.
- 2) Optimize various dispersant application systems and operations.
- 3) Compare performance associated with various response options.

The Planner begins with an estimate of the thickness of an oil slick. For the purposes of the model, a nominal or “average” thickness can be based on output from NOAA’s ADIOS™ oil weathering model, estimated volumes and areas, or approximations of barrels of oil/emulsion per acre.

Using estimates of the thickness and extent of an oil slick, the Dispersant Mission Planner calculates the dosage required to treat the slick at a given dispersant-to-oil ratio.

## In-situ Burn Calculator™

The In-situ Burn Calculator provides oil spill planners and responders with time estimates and fire boom lengths for burning oil in two different modes. Calculations can be based on either a single release (batch) or a continuous release of oil. In batch mode, the boom encounter rate is a function of oil slick thickness, swath width, and tow speed (relative to the water). In continuous mode, the boom encounter rate is estimated from the source release rate, the tow speed, and the current speed (relative to the source). Performance of one U configuration of fire boom is estimated for both modes.



A U configuration consists of a length of fire-resistant boom connected to a towing vessel at each end via a bridle. In batch mode, the calculator estimates the number of burns by one U configuration to remove the spilled oil. In continuous mode, the calculator estimates the number of fire boom U

configurations of a specified length to burn the continuously released oil. This calculator depends on a knowledge of oil slick thicknesses or source release rates. The calculator permits rapid computations for a range of conditions for a burn scenario, which should provide an “envelope” of realistic solutions. The model can help responders:

- 1) Select and stage appropriate equipment.
- 2) Optimize various burn strategies and operations.
- 3) Compare performance associated with various response options.

## Mechanical Equipment Calculator™

The Mechanical Equipment Calculator tool provides spill recovery rates by mechanical equipment. The tool provides insight into the performance of floating-advancing oil skimming systems individually, comparatively, and collectively. The model rapidly assesses how changes in a skimmer's configuration or operation can affect potential recovery of oil from a specified oil slick. Recovery systems can be evaluated for the estimated volume of oil/emulsion recovered and the area accessed within an operational period. The model can help responders:

- 1) Select and stage appropriate equipment.
- 2) Optimize various mechanical recovery systems and operations.
- 3) Compare performance associated with various response options.

Potential performance is based on encounter rates that in turn depend on swath width, skimming speed, and oil slick thickness. For the purposes of this model, a nominal or "average" thickness can be based on output from NOAA's ADIOS oil weathering model, estimated volumes and areas, or approximations of barrels of oil/emulsion per acre.

## Incident Command System Forms

This Spill Tool component is a database of spill response forms. The U.S. Coast Guard, in cooperation with state and industry response agencies, developed guidance and forms for implementing a National Interagency Incident Management System Incident Command System (ICS) for oil spills. This guidance is published as the U.S. Coast Guard Incident Management Handbook.

As part of NOAA's participation in the ICS development, we have created a database that contains all of the ICS forms that are part of the handbook. This database works on Windows and Macintosh platforms and can be distributed freely without software license restrictions. The forms are also available in portable document format (pdf).

## Getting Spill Tools

Each Spill Tool is available in Macintosh and Windows versions, and can be downloaded from the Internet at <http://response.restoration.noaa.gov/oilaid.html>.

For additional information, visit <http://response.restoration.noaa.gov>, e-mail [orr.spilltools@noaa.gov](mailto:orr.spilltools@noaa.gov), or call 206/526-6317.

